

Appl. No.: 10/612,511

Response to Office communication dated: 10/13/2005

Attorney Docket: UCON/204/US

AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

1. (original) An orthodontic component, comprising a rigid backbone polymer including at least one of a compatibilizing side group or a solubilizing side group.
2. (original) The orthodontic component of claim 1, wherein the polymer is used in a neat form.
3. (original) The orthodontic component of claim 1, further comprising reinforcing fibers.
4. (original) The orthodontic component of claim 1, further comprising filler.
5. (original) The orthodontic component of claim 1, further comprising a non-rigid backbone polymer.
6. (currently amended) The orthodontic component of claim 1, in the form of comprising a wire having a shape capable of providing a good fit in an orthodontic bracket.
7. (currently amended) The orthodontic component of claim 1, wherein the side group reacts with a the non-rigid backbone polymer and thereby reduces phase separation.
8. (original) An orthodontic component, comprising a thermoplastic polymer, wherein the thermoplastic polymer in the neat resin form has an unreinforced tensile strength of at least about 150 MPa and an unreinforced tensile modulus of at least about 4 GPa.

9. (original) The orthodontic component of claim 8, wherein the polymer in the neat resin form has an unreinforced elastic deformation of at least about 30.
10. (original) The orthodontic component of claim 8, wherein the polymer in the neat resin form has an unreinforced tensile strength of at least about 200 MPa and an unreinforced tensile modulus of at least about 8 GPa.
11. (original) The orthodontic component of claim 8, having a refractive index of about 1.66 to about 1.70.
12. (original) The orthodontic component of claim 8, further comprising a reinforcing agent.
13. (original) The orthodontic component of claim 8, consisting essentially of the thermoplastic polymer and no more than 5 percent by component weight of a reinforcing agent.
14. (original) The orthodontic component of claim 8, selected from a force delivery component, a wire, an attachment and an auxiliary.
15. (original) The orthodontic component of claim 8, comprising a wire wherein the wire has a cross section that is not circular and not quadrilateral.
16. (original) The orthodontic component of claim 8, comprising a wire wherein the wire has a cross sectional shape selected from a circle, a portion of a circle delineated by two radii of the circle, a polygon, an "I" shape, a "C" shape, an "L" shape, a "T" shape or a combination thereof.

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17. (original) The orthodontic component of claim 8, comprising a bracket having a slot, wherein the slot is configured to interengage with wires of different cross-sectional shapes to provide a good fit.
18. (original) The orthodontic component of claim 8, comprising a wire, wherein the wire has a different cross section at different points along its length.
19. (original) The orthodontic component of claim 8, having a Rockwell B hardness of at least about 75.
20. (original) The orthodontic component of claim 8, having a pencil hardness of at least about 7H.
21. (original) The orthodontic component of claim 8, comprising at least a second polymer material.
22. (original) The orthodontic component of claim 8, consisting essentially of the thermoplastic polymer.
23. (currently amended) The orthodontic component of claim 8, wherein the thermoplastic polymer is in the form of ~~material comprises~~ a coating over at least part of a core.
24. to 35. (cancelled)
36. (new) The orthodontic component of claim 1 wherein the rigid backbone polymer comprises arylene or heteroarylene moieties joined together by covalent bonds between adjoining ring carbon atoms.

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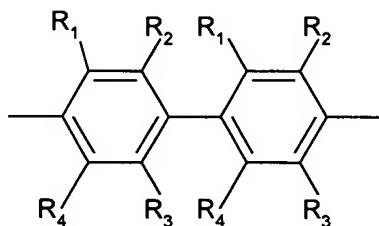
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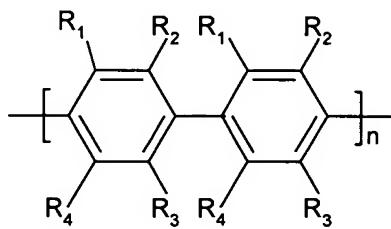
37. (new) The orthodontic component of claim 1 wherein the rigid backbone polymer comprises arylene or heteroarylene moieties joined together by 1,4 covalent bonds between adjoining ring carbon atoms.

38. (new) The orthodontic component of claim 1 wherein the rigid backbone polymer comprises arylene or heteroarylene moieties joined together by covalent bonds between adjoining ring carbon atoms, wherein at least about 95% of the covalent bonds are substantially parallel to each other.

39. (new) The orthodontic component of claim 1 wherein the rigid backbone polymer comprises the following structure:



40. (new) The orthodontic component of claim 1 wherein the rigid backbone polymer comprises the following structure:



and n is an integer from 2 to about 8.

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41. (new) The orthodontic component of claim 8 wherein the thermoplastic polymer is used in a neat form.

42. (new) An orthodontic component, comprising a thermoplastic polymer, wherein the thermoplastic polymer has an unreinforced tensile strength of at least about 150 MPa and an unreinforced tensile modulus of at least about 4 GPa.

43. (new) The orthodontic component of claim 41, wherein the thermoplastic polymer comprises arylene or heteroarylene moieties joined together by covalent bonds between adjoining ring carbon atoms.

44. (new) The orthodontic component of claim 41, further comprising a reinforcing agent.